Subscriptions for 1950 are payable now

ENTOMOLOGICAL NEWS

NOVEMBER 1949

Vol. LX **No. 9**

CONTENTS

Hull—Unusual Syrphid flies 225
Knowlton—Ladybird feeding notes 234
Sommerman—Microfilm 236
Eads—Notes on Ixodes scapularis 238
Knowlton—A new oak aphid 240
Wene—Notes on the lace-bug, Gargaphia 242
Stahnke—A scorpion synonym 243
Current Entomological Literature 244
Entomon, new journal 251

PUBLISHED MONTHLY, EXCEPT AUGUST AND SEPTEMBER, BY
THE AMERICAN ENTOMOLOGICAL SOCIETY
PRINCE AND LEMON STS., LANCASTER, PA.
AND
THE ACADEMY OF NATURAL SCIENCES, PHILADELPHIA 3, PA.

Subscription, per yearly volume of ten numbers: $4.00 domestic; $4.30 foreign; $4.15 Canada.
Entered as second-class matter April 19, 1943, at the post office at Lancaster, Pa., under the Act of March 3, 1879. Acceptance for mailing at the special rate of postage provided for in the Act of February 28, 1925, authorized April 19, 1943.

ENTOMOLOGICAL NEWS

ENTOMOLOGICAL NEWS is published monthly, excepting August and September, by The American Entomological Society at 1900 Race Street, Philadelphia 3, Pa., U. S. A.

PHILIP P. CALVERT, Editor Emeritus. R. G. SCHMIEDER, Editor. Editorial Staff: E. J. F. MARX, M. E. PHILLIPS, J. A. G. REHN, and A. G. RICHARDS.

Subscription price, per yearly volume of 10 numbers: Domestic, $4.00; Foreign, $4.30; Canada, $4.15—U. S. Currency.

SUBSCRIPTIONS, ADVERTISEMENTS: All communications and remittances to be addressed to **ENTOMOLOGICAL NEWS, 1900 Race Street, Philadelphia 3, Pa.**

ADVERTISING RATES: Full width of page. Payments in advance.

	1 Inch	2 Inches	3 Inches	6 Inches
One Issue	$ 2.50	$ 4.50	$ 6.50	$10.00
Five Issues	9.00	17.00	24.00	42.00
Ten Issues	16.00	30.00	42.00	72.00

MANUSCRIPTS and all communications concerning same should be addressed to **R. G. Schmieder, Zoological Laboratory, University of Pennsylvania, Philadelphia 4, Pa.**

The receipt of all papers will be acknowledged and, if accepted, they will be published as soon as possible. If not accepted, authors will be so advised and postage requested for return of manuscripts. Articles longer than six printed pages may be published in two or more installments, unless the author is willing to pay for the cost of a sufficient number of additional pages in any one issue to enable such an article to appear without division.

ILLUSTRATIONS will be published at the author's expense as follows: Cost of engraving plus cost of printing text-figures exceeding 2 inches in height; or plus cost of printing insert plates. The size of text-figures or plates when printed must not exceed 4 x 6 inches.

All blocks will be sent to authors after publication. It is not advisable to print half-tones as text-figures.

TABLES: Authors will be charged the setting of all tables exceeding 2 inches in height.

SEPARATA: Twenty-five extras of an author's contribution will be given free. They will be "run of form," without removal of extraneous matter, folded but not bound, uncut and without cover.

Authors wishing more than the 25 separates must so advise the Editor or the printer. See bottom of this page. The Editor requests that authors state the number of separates desired in a letter accompanying their manuscript.

SEPARATES of articles without covers, without extraneous matter, will be furnished by the printer at the following prices: 1–4 pages, 25 copies, $3.13; 50 copies, $313; 100 copies, $3.75. 5–8 pages, 25 copies, $5.00; 50 copies, $5.00; 100 copies, $5.94. 9–12 pages, 25 copies, $7.81; 50 copies, $7.81; 100 copies, $9.06. Covers: first 50, $3.44; additionals at .025 cents each. Plates, printed on one side: first 50, $2.50; additional at 0.188 cents each. Transportation charges will be extra. THE LANCASTER PRESS, INC., Lancaster, Pa.

ENTOMOLOGICAL NEWS

VOL. LX NOVEMBER, 1949 No. 9

Some Unusual Syrphid Flies

By FRANK M. HULL, University of Mississippi

Several flies of unusual interest that have been recently received are here described.

Cacoceria willistoni n. sp.

A remarkable fissicorn fly differing from *cressoni* Hull in the black stripe along the second vein besides numerous other particulars. Length 10.5 mm.

Male. *Head:* vertex black, slightly raised; the ocelli lie in an equilateral triangle, the anterior part of the vertex quite pollinose with scattered whitish hairs, the posterior pile of the vertex somewhat more yellowish. The eyes are dichoptic, separated by a distance at least as wide as the total width of the ocellar triangle, and the front diverges sharply beyond this medial point. Across the medial point of the front there is a slender crease which is bare; the white micropubescence reaches above and below up to this bare crease. Most of the lower front, however, is polished and bare and the pubescence ends along the eye margin opposite the preantennal callosity and begins again just below the antennae where it curves downward and medialward to reach across the face below the antennae. There is also a broad band of sparse, whitish micropubescence which extends diagonally down from the eye margin to the epistoma. The face, metallic black in color, has a low inconspicuous tubercle in the middle, is faintly pollinose in the middle. Eyes bare. The antennae are slender and elongate, longer than the height of the head, and the third segment is

quite remarkable. It is developed into two long, deep, slender prongs; the dorsal prong is not quite as long as the ventral one and is slightly curved downward. This prong bears the long slender whip-like arista which is slightly and gradually thickened over the basal half and becomes quite fine at the apex. The first segment of the antennae is slender and elongate and five or six times as long as wide, pale brownish yellow on the basal half, becoming diffusely blackish apically and is considerably longer than the slender second segment which is entirely black. The third segment is entirely black and the arista dark brown. There are no traces of pores upon the third segment. *Thorax:* mesonotum dull black, rather convex, with a pair of widely separated, vittate stripes of yellow pile which is nearly erect but directed slightly forward. These stripes merge into a broad wide area of similar pile in front of the scutellum which is bordered on either side by short thick black pile. All of the pile on the sides of mesonotum behind the suture is black except for this middle area and except for a slender band of inconspicuous yellow hairs merging with the black which lies immediately behind the transverse suture. There are two or three scattered yellow hairs in the middle of the black pilose area and the pile of the post-calli is mostly black with a few yellow hairs. The pile in front of the suture is entirely brassy yellow but is subappressed and pointed backwards except upon the wide submedial stripes as previously described. Pleura dully shining black with whitish pile, the scutellum dark brassy brown, almost black with the margin obscurely and narrowly yellowish brown. The pile is short and yellow and there is a well developed yellow ventral fringe. Squamae and fringe blackish. Halteres yellowish white with a black knob. *Legs:* anterior and middle legs dark sepia-brown, the hind legs also dark sepia-brown except that the hind femora are narrowly but obscurely and diffusely pale yellow upon the attenuate portion at the base. As in the genotype, the femora are very much thickened and quite wide in the middle but gradually taper to the narrow apical and basal ends; the base is especially narrowed and spindle-shaped. Pile of hind femora whitish and

there are five slender, ventral, apical, widely spaced, sharp black setae. Hind tibiae quite arcuate and flattened with a sharp apical spur. *Wings:* hyaline with a distinct but diffuse, smoky blackish border along both sides of the second vein, from the point of origin of the vein in the middle of the wing, nearly to its junction with the costa. The anterior apical portion of the marginal cell is left clear; the pterostigma is entirely deep sepia-brown. *Abdomen:* subpetiolate in shape and chiefly dull black in color. The first segment is shining black, obscurely yellowish brown in the middle and the segment narrows considerably posteriorly and the second segment continues the constriction of the abdomen for a short distance and then begins to gradually expand so that the posterior end of the second segment is distinctly wider than the base of this segment. The second segment is narrowly and obscurely brownish yellow along the base but this color does not reach the sides. Immediately behind the yellow color the abdomen is nearly opaque black and this opaque black is gradually replaced by faintly shining bluish or greenish black. Third segment slightly wider posteriorly than basally and this segment is about as long as wide, its color faintly shining greenish to brassy black. Fourth segment together with the hypopygium forming a wide convex club-shaped arrangement. It is, however, not wider than the third segment; its pile is entirely short, appressed and yellow. All of the pile of the third segment is appressed and yellow except for a small area in the middle of the segment on the posterior half where the pile is blackish. The pile of the second segment is entirely black except for the long fine scattered hairs on the lateral margin. Pile of first segment whittish, long and fine upon the sides.

Female. Similar to the male in every respect except that the third antennal segment is not fissiform. The third segment is, however, quite long and slender and seems to be at least as long as the lower branch of the male. The abdomen is similar except that the second segment is not quite as much constricted basally.

Holotype: male, Chanchamayo, PERU, August 16, 1948, J. Schunke; *allotype:* female with the same data. In the author's collection.

In 1930 the author erected the genus *Cacomyia* with *cressoni,* from Mexico, as genotype, from a female specimen in which the third antennal segment was broken away at the base. The genus was based upon the peculiarities of the face, abdomen and hind femora. The name was changed by the author in 1936 to *Cacoceria* as the name *Cacomyia* was found to be preoccupied.

To the generic characterization of the genus then we now must add that the males are dichoptic and the third antennal segment deeply fissicorn in this sex.

Mesogramma rhea n. sp.

Related to *hieroglyphica* Schiner. This pretty species is distinguished by the polished black abdomen in which the sides are narrowly light yellow, for most of the basal length of each segment and there is a distinct, opaque, elongate, wedge-like black spot in the middle of the second, third and fourth segments. Length 6 mm.

Male. *Head:* face and front light yellow, the face short, the narrow cheeks blackish, the scant pile white except opposite the antennae where it is blackish. Lower sides of the face with a large triangle of white pubescence. Antennae reddish brown, paler ventrally except upon the outer two-thirds of the third segment. Arista blackish. Vertex violaceous with blackish pile. Occiput black with metallic reflection and greyish white pollen and pile, the latter but slightly flattened. *Thorax:* mesonotum metallic black with sharply defined shining blue medial stripe overlaid by faint grey pollen. The humeri are pale yellow, the notopleura and remainder of the lateral margin metallic blackish. Scutellum brassy black, the posterior margin yellow, the yellow not extending to the base. Pile of mesonotum fine and yellow; scutellar pile of the same color and longer with five or six long, black hairs on the margin; the posterior half of the mesopleura and a large spot on the upper sterno-

pleura yellow, the remainder of the pleura shining black, in places with brassy reflections. Squamae yellowish white, the halteres reddish orange. *Legs:* anterior femora yellow with wide, diffuse, subapical band, their tibiae pale yellow with a brown spot in the middle ventrally and their tarsi brown. Middle femora yellow with still wider subapical brown annulus and with a subbasal, dorsal, brown spot. The yellow tibiae are faintly brownish just beyond the middle, the base of the basitarsi yellowish and the remainder brown. Hind femora pale yellow on the basal third, narrowly at the apex, but widely shining black between. These femora a little thickened. The hind tibiae are entirely black except quite narrowly at the base, the tarsi entirely blackish sepia. *Wings:* hyaline, pterostigma pale brown, the alulae narrow but wider than the basal section of the costal cell. *Abdomen:* slender, slightly increasing in width to the end of the fourth segment, the first segment shining black except linearly along the lateral anterior margin and with a medial, opaque black vitta and there is a narrow, yellow vitta or stripe lying upon the lateral margin reaching neither the base nor the apex. Third segment shining black with opaque black medial vitta and with more prominent, sharply marked, yellow lateral stripe which runs from the base two-thirds the length of the segment. Fourth segment in every way similar to the third. Fifth segment similar but shorter, the lateral yellow stripe not quite so large and the opaque medial spot absent. Hypopygium shining black apically but otherwise yellowish brown.

Female. Similar to the male, the middle of the front metallic black, the face faintly brownish in the middle, the abdomen a little wider and faintly oval with the same pattern of yellow spots and opaque medial vitta. Fifth segment with an oval, opaque black spot in the middle.

Cotypes as follows: 3 males, Nova Teutonia, BRAZIL, Fritz Plaumann, one female, same data.

Baccha lucretia n. sp.

A dark sepia blackish species with yellow face and four slender yellow vittae upon the third, fourth and fifth segments of the abdomen. Related to *notata* Loew. Length 8 mm.

Male. *Head:* the vertex dully shining black with a single row of black hairs. The front is pale yellow upon the sides with the yellow margins meeting at the junction of the eyes and with a large, black, faintly shining triangle in the middle of the front which anteriorly rests upon the large yellowish preantennal callosity and emits short, lateral, arms enclosing the upper portion of the callosity. In the center of the callosity is a large, shining black, anteriorly angular, posteriorly rounded, black or purplish black spot. The face is pale yellow with a reddish brown wedge medially reaching from the center of the tubercle up to the base of the antennae. Cheeks pale yellow tinged with brown in the middle. Pile of face white and of the front black. The first and second segments of the antennae are pale yellowish brown; the third segment is brownish orange below, blackish above, narrowly towards the base and widely towards the apex. Arista narrowly reddish at the base and blackish upon the remainder. Occiput grayish yellow pollinose with a single row of fine, non-flattened, yellow hairs. *Thorax:* mesonotum brassy black with the lateral margins narrowly but continuously pale yellow including the humeri and the post calli. Middle of mesonotum with a pair of widely separated, relatively narrow, light reddish brown pollinose vittae which become evanescent one-fourth of the length of the mesonotum measured from the scutellum. The scutellum is light yellow with the disc becoming brownish, which is more evident when viewed from the side. The pile upon the surface of the scutellum is very fine, scanty and comparatively short. I can find no evidence of ventral fringe hairs. Mesonotal pile also short, scanty and pale brownish or reddish in color. There is no anterior collar. The pleura are metallic black with the propleura, the posterior margin of the mesopleura and a spot upon the upper sternopleura yellow. Halteres sepia, squamae with border and fringe also dark sepia. *Legs:* anterior pair en-

tirely light yellow; the middle legs are the same color except that their femora tend to be pale brown subbasally. The hind femora, their tibiae and the basal two-thirds of the hind basi tarsi are dark sepia brown. Viewed in some lights, the hind femora in some individuals are a little lighter than their respective tibiae but have a wide, blackish, subapical annulus. The remainder of the hind tarsi are pale brownish orange or yellow. *Wings:* moderately wide and wholly and uniformly dark sepia-brown. The alulae are quite slender and only at the apex are they wider than the basal section of the costal cell. Preanal spuria faint. Third vein straight but very slightly carried down at the apex of the wing by the costa. Subapical cross vein gently sigmoid, the lower ends of subapical and lower cross veins each with well developed spur. Anal vein quite straight. *Abdomen:* slightly spatulate and deep sepia-brown, almost black, with conspicuous, sharply defined, light yellow vittae. The first segment is yellow on the sides and brownish black in the middle, especially posteriorly. Anteriorly the lateral yellow spots are sharply pointed and angular and extend towards the middle of the segment. The second segment is subcylindrical, brownish black and about two and one-fourth to two and one-half times as long as its posterior width; the sides are almost parallel but the segment is slightly wider anteriorly. Just past the middle there are a pair of nearly transverse, yellow, medially enlarged spots which are narrowly separated. Third segment about one and a half times wider posteriorly than basally and a little longer than twice its basal width. It is brownish black with a pair of slender, posteriorly rounded, but wider and widely separated, submedial yellow vittae. Lying outside of these vittae posteriorly are two short, yellow, wedge-like spots. All four of these vittate spots end a considerable distance from the posterior margin of the segment but the submedial pair are slightly longer. Fourth segment similar in general pattern to the third, the segment equally wide anteriorly and posteriorly, the submedial vittae of the same position, width and thickness but extending closer to the posterior margin, the outlying pair of vittae also originating at the base of the segment, extending

two-thirds the length of the segment and distinctly but slightly curved towards the medial vittae leaving the concavity lateral. The fourth segment is about one-fourth to one-third longer than wide. The fifth segment is half as long as the fourth, the middle pair of vittae slightly convergent, the outer pair like those upon the fourth segment originating at the base but wider basally than the submedial pair and much shorter; they, therefore, appear as acute wedge-shaped spots. Hypopygium polished brassy or brownish black. Pile of abdomen everywhere blackish.

Female. Similar in nearly every respect to the male, the front is widely blackish in the middle with narrow, yellow, lateral margins which reach as far as the anterior ocellus. The wings are perhaps slightly wider but tend to be a little paler, leaving a slightly accentuated, very large, brown, quadrate, darker spot in the middle. This is perhaps due to tenerality of which there is some evidence. However, the last section of the first posterior cell as measured by a transverse line through the lower end point of the subapical cross vein is shorter. This cross vein is then more sigmoid. *Abdomen:* similar to the male, the second segment is not quite twice as long as wide, the third and fourth are a little shorter. The fifth is somewhat longer and larger and the sixth is about one-fourth as long as the fifth and is transverse with the posterior margin in the middle a little bit rounded and elevated. The total width of the abdomen is slightly greater.

Holotype: male, Chanchamayo, PERU, August 19, 1948, J. Schunke. *Allotype:* female with the same data, but August 11, 1948. *Paratypes:* three males, June 20–Aug. 11, and Aug. 19, 1948. In the author's collection.

Salpingogaster urania n. sp.

Related to *compressa* Curran. This species is distinguished by the subapical spur upon the second vein and the absence of a brownish yellow border upon the second cubital vein. Length 15.5 mm.

Male. *Head:* face and cheeks pale yellow, the front very dark shining red, prominent and protuberant with a narrow,

conspicuous, bright yellow margin along the eyes, meeting at the eye junction but confined to the upper half of the front only. Preantennal callus concolorous with front. First antennal segment of the same color. Second and third segments brownish red, the third smoky brown on the dorsal half, the arista light brown at the base, dark brown apically. Pile of front short, subappressed and black. Pile black on the upper part of the face, short, fine and yellow below. Vertex shining black. Occiput black except ventrally where it is yellow, the pollen pale grey, the pile yellowish white becoming more reddish above. *Thorax:* mesonotum dark reddish brown except as follows: the humeri, a wide band along the notopleura to the transverse suture, a spot medial and adjacent to the humeri and the posterior calli, all light yellow. The posterior portion of the mesonotum also becomes more yellowish pollinose. Also on the mesonotum there are three, quite obscure, narrow, dark reddish sepia vittae. The outer pair are a little expanded where they cross the suture and all three are narrowly continued to within a short distance of the scutellum. Scutellum pale yellow with a faint, transverse, light brown band occupying most of the disc except the immediate base. Mesonotal pile short, subappressed and yellowish. Scutellar pile still shorter, sparse, yellow with a few minute microscopic black setulae. Pleura reddish brown, a diagonal yellow stripe confluent with the notopleural band runs down the posterior margin of the mesopleura and ends in a small spot on the upper sternopleura. Squamae dark brown, upper squamae more reddish. Halteres yellow, the knob sepia. *Legs:* anterior and middle femora and tibiae entirely rich light yellow, their basitarsi more yellow, their remaining tarsi more of a pale orange brown, their coxae reddish sepia. Hind femora yellowish in the middle and apically, diffusely reddish brown basally and subapically. Hind tibiae entirely yellow with yellow pile. Hind tarsi orange brown. *Wings:* nearly hyaline, the entire costal cell, the subcostal cell as far as the pterostigma, the marginal cell as far as the pterostigma yellow in color. The basal portion of the upper half of the first basal cell, the narrow margin along the

cubital vein as far as the mediocubital cross vein, narrowly margined with yellow. The pterostigma is very dark sepia, almost blackish. The marginal cell from the base of the pterostigma outward and the end of the submarginal cell is also dark sepia. The end of the marginal cell, in both wings, in five specimens, has a distinct short spur. The loop of the third vein is extremely deep, suboblique and rounded. The subapical cross vein bulges far outward on its apical two-thirds and is deeply kinked inward on the basal portion. Alulae narrow and pale, scarcely wider than the basal section of the costal cell. First segment of abdomen pale yellow, narrowly reddish along the posterior margin, except laterally, second segment quite long and subcylindrical, light red in color, except narrowly on the basal margin which is pale diffusely yellowish. The third segment is narrow basally and reddish brown becoming widely expanded posteriorly and dark reddish sepia. Fourth segment a little wider basally than posteriorly and also dark reddish sepia throughout. Fifth segment of the same color but less than half as long as the fourth segment. The fourth segment is barely shorter than the third and the third segment is approximately three-fifths as long as the second. Hypopygium light brownish red, conical and ending in a rather sharp point posteriorly. The fifth sternite turns straight downwards in two brownish red lobes, densely beset with rather long, stiff, bristly black hairs.

Holotype: male, Chanchamayo, PERU, June 8, 1948. *Paratypes:* 3 males with the same data and one paratype male, May 1948, J. Schunke. In the author's collection.

Ladybird Beetle Feeding Notes

By GEORGE F. KNOWLTON, Utah State Agricultural College, Logan

A five-spotted ladybird beetle, *Hippodamia quinquesignata* Kirby, was found to be feeding on a tiny wingless aphid, *Phorodon menthae* (Buckton), on *Mentha spicata* at Nephi, Utah, June

26, 1945. An adult of this ladybird also was observed at Wellington, Utah, June 14, 1945, feeding on a wingless aphid, *Capitophorus elongatus* Knlt., on rabbitbrush, *Chrysothamnus nauseosus*. An adult five-spotted ladybird also was found to be feeding on a pea aphid, *Macrosiphum pisi* (Kalt.), in net sweepings made in an alfalfa field at Freemont, in Wayne County, Utah, on July 10, 1943. In the same net, an *Orius tristicolor* Wh. was feeding on a winged western flower thrips, *Frankliniella moultoni* Hd., which was quite abundant in the field. At Amalga, Utah, June 27, 1938, ladybird adults and larvae, syrphid larvae and other predators of aphids were moderately abundant in a field of canning peas which was suffering pea aphid injury. Both a five-spotted and a convergent ladybird beetle were observed to feed on pea aphids. At Avon, Utah, both these ladybird beetles and also ladybird larvae were moderately abundant on July 17, 1945, on sugar-beets raised for seed and on which the green peach aphid, *Myzus pericae* (Sulzer), was moderately abundant. Here an adult five-spotted ladybird was found to be eating a winged *persicae*, while at Cedar City, Utah, on July 3, 1946, an adult specimen of this predator species fed on a mature wingless hollyhock aphid, *Macrosiphum coessigi* Knlt. Ladybird beetles of several species were present among a heavy infestation of this injurious aphid. At Axtell, Utah, May 14, 1943, a five-spotted ladybird was observed to be eating a small alfalfa weevil larva. A convergent ladybird, *H. convergens* Guerin, was eating a *Capitophorus elongatus* on *Chrysothamnus*, ten miles north of Panguitch, Utah, June 28, 1945. Aphids of this species were abundant and three species of ladybird beetles were present on this infested rabbitbrush. An adult *Coccinella transversoguttata* Fald. was found while feeding on an *Aphis helianthi* Monell on a sunflower leaf at La Point, Utah. An *Anatis lecontei* Csy., collected in Logan Canyon, July 5, 1943, ate 399 pea aphids in nine days, with a maximum of 78 fourth instar *Mac. pisi* eaten in one day.

The two-spotted ladybird beetle, *Adalia bipunctata* (L.), was observed to feed on the following insects: *Capitophorus elongatus* on *Chrysothamnus nauseosus* at Circleville, Utah, July 11, 1942;

on *Myzocallis tiliae* (L.), on *Tilia americana* at Brigham City, Utah, June 21, 1943; on *Macrosiphum coessigi* on heavily infested hollyhock plants which apparently had been stunted by the severe aphid attack, at Provo, Utah, July 16, 1946, and again to be eating an aphid of the same species at Lethbridge, Alberta, Canada, July 27, 1946; and *Phorodon menthae* on ditchbank spearmint at North Farmington, Utah, July 9, 1947. For several weeks this *Mentha spikata* was heavily infested with this little aphid which in turn was attacked by numerous larval and adult ladybird beetles of several species, as well as by large numbers of *Orius tristicolor,* besides fewer *Anthocoris melanocerus* Reuter, and syrphid and aphid-lion larvae.

An *Adalia frigida* (Schw.), collected at Echo, Utah, June 29, 1943, was brought into the college laboratory. Although offered 19 fourth-instar pea aphids, it ate only one and died on the third day.

Obtaining, Reading and Filing Microfilm

By KATHRYN M. SOMMERMAN, Washington, D. C.

A film library seems to be the solution to some of the difficulties I have encountered in taxonomic work in entomology. In many instances I have found it impossible to procure reprints of needed articles and in some cases I have not been able to obtain journals from the library, or often they are in use when needed.

The U. S. Department of Agriculture Library, Washington 25, D. C. has a Photocopying Service for private individuals. Articles are furnished on 35 mm. film, or as photoprints. Request forms for Photocopying Service are mailed upon request. A separate Request Form is required for each article. The completed forms (as complete as possible) giving: "Author, Title, Periodical Title, Volume, No., Date and Pages inclusive" are mailed to the Library along with Library Coupons, Check or Money Order. When ordering, I request the numbers under which the order is processed, which makes it easy to keep track of the film because it is not always all returned at one time. It is also convenient to refer to back orders by num-

ber instead of repeating the whole reference, in case errors are made in the filming process. Under "Pages inclusive" I also request "Title page" so there will be no question later when citing the reference for publication.*

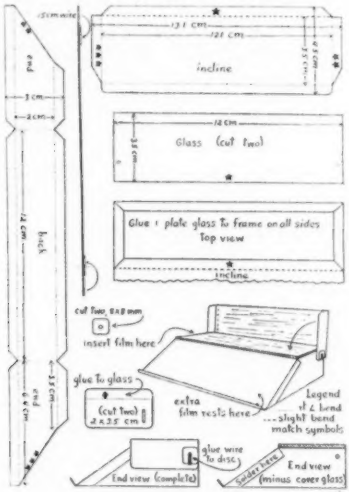

FIG. 1.

When the film is carefully checked I cut it into sections, each strip containing three exposures (6 pages), and tie the strips together with a double loop of loose thread through the sprocket holes near the upper left corner. The complete reference is typed on a 3 × 5 Manila envelope, with flap and opening on the three-inch right side. The strips are put in the envelope and filed in a standard 3 × 5 card file.

The articles are read on the simple reader, Fig. 1, with the aid of the mirror and the low power lens combination of a stereoscopic microscope. The reader is made of copper sheet

* EDITOR'S NOTE. Microfilming service may also be obtained from most of the larger libraries in the country, where special order forms are not required, though references must be complete. Prompter service may also usually be obtained at other libraries such as those listed in Gregory's Union List of Serials.

and an old photographic glass plate cut to the proper size, see diagram. The gadget is held together with solder, glass-metal household cement, and a short piece of wire. The film strips not in use at the moment rest on the incline and the upper glass holds flat the strip being read.

This system is particularly convenient when one is studying type material, for the necessary literature, the reader and the microscope can be packed in the microscope case and all carried as a unit.

Notes on Ixodes scapularis Say with an Additional Lizard Host

By RICHARD B. EADS, Bureau of Laboratories, State Department of Health, Austin, Texas

Ixodes ricinus Linnaeus and the closely related species *I. scapularis* Say and *I. pacificus* Cooley and Kohls exhibit little host specificity, particularly in the immature stages. Various authorities list a wide range of hosts for these species, including representatives of the Classes Mammalia, Aves and Reptilia.

Parasitism of reptiles by ticks of the genus *Ixodes* appears confined to the *ricinus* complex. Nuttall and Warburton (1911), after various authorities, chiefly Neumann (1899), list this species from lizards taken in the following countries: Italy—immature forms from *Lacerta muralis* and *L. viridis;* Spain—lizards of different species; Albania—larvae, nymphs and adults from *Lacerta agilis, L. arenicola* and *L. vivipera;* Africa—larvae and nymphs from *Lacerta ocellata* and *Tropidosaurus algirus;* and Asia—from lizards.

Nuttall and Warburton (1911) also record the adults of *Ixodes ricinus* from a wide variety of mammalian hosts and larvae and nymph from avian and mammalian hosts.

In the United States lizards have been reported as hosts of the immature stages of *I. scapularis* and *I. pacificus.* Bishopp and Trembley (1945) give the lizard, *Sceloporus occidentalis,* as host for nymphal *I. pacificus.* Cooley and Kohls (1945) report larvae and nymphs of *I. pacificus* from *Gerrhonotus scinci-*

cauda, G. coeruleus, G. multicarinatus, Sceloporus occidentalis and *Cnemidophorus* sp. in California. Gregson (1942) records larvae and nymphs of this species commonly parasitizing *Gerrhonotus principis* in British Columbia.

Bishopp and Trembley (1944) give one record of a larva and nymph of *I. scapularis* being recovered from the lizard, *Sceloporus undulatus.* During studies on Bullis fever in Bexar and Comal Counties, Texas, Brennan (1945) recovered nymphs and larvae of this species from the lizards: *Leiolepisma unicolor, Sceloporus olivaceus* and *S. undulatus.* Hixon (1941) records 123 larvae and 8 nymphs of *I. scapularis* from two *Plestiodon fasciatus* and 42 larvae and 6 nymphs from *Sceloporus undulatus.* The hosts were collected near Gainesville, Florida.

Since no larval and few nymphal records of *I. scapularis* from birds or mammals have been made by personnel of this Laboratory, we were particularly interested in the recovery February 19, 1949, by Tom Moore, Texas Fish, Game and Oyster Commission, of an *I. scapularis,* partially engorged nymph, from a glass-snake lizard, *Ophisaurus ventralis* Linnaeus, taken on the Aransas Federal Game Refuge, Aransas County, Texas. Verification of the identification of the tick was made by Drs. J. C. Bequaert, Harvard Museum of Comparative Zoology, Cambridge, Massachusetts, and G. M. Kohls, Rocky Mountain Laboratory, Hamilton, Montana. The specific determination of the lizard was made by Tom Moore.

State Department of Health records indicate the black-legged tick, *Ixodes scapularis,* to be the most common *Ixodes* in Texas. In the southern and eastern part of the state adults have been commonly taken from deer, raccoon, gray fox, red wolf, tree squirrel and bobcat.

Twenty-six deer trapped by the Texas Fish, Game and Oyster Commission on the Aransas Federal Game Refuge were examined for ectoparasites in December, 1948. The animals were uniformly infested, particularly about the head, with adult *I. scapularis.* Deer taken from this refuge are sent to other Texas counties, other states and possessions of the United States. Consequently it was considered advisable that they leave the

heavily infested game refuge in a tick-free condition, if possible. With this objective in mind the twenty-six deer were sprayed with a one per cent wettable DDT at the rate of a pint per animal. Before spraying, each animal was parasitized by twenty to twenty-five *I. scapularis*. Twenty-four hours after spraying only an occasional tick was found which could still feebly move its legs.

Summary: A nymphal *Ixodes scapularis* has been taken from an apparently new lizard host, *Ophisaurus ventralis*. Adult *I. scapularis* were controlled on deer by spraying individual animals with a pint of one per cent wettable DDT.

LITERATURE CITED

BISHOPP, F. C., and H. L. TREMBLEY. 1945. Distribution and hosts of certain North American ticks. Jour. of Parasit. 31 (1): 1–54.

BRENNAN, J. M. 1945. Field investigations pertinent to bullis fever. Texas Repts. on Biol. and Med. 3 (1): 112–121.

COOLEY, R. A., and G. M. KOHLS. 1945. The Genus *Ixodes* in North America. Nat. Ins. of Health Bull. 184, pp. 1–246.

GREGSON, J. D. 1942. The coast tick (*Ixodes Californicus* Banks) problem in British Columbia. Can. Ent. 74 (1): 3–5.

NEUMANN, L. G. 1899. Revision de la famille des Ixodides. Mem. Soc. Zool. de France 12: 107–294.

NUTTALL, G. H. F., and C. WARBURTON. 1911. Ticks. A monograph of the Ixodoidea. Part II. Cambridge Univ. Press. London. Pp. 105–348.

A New Oak Aphid from Utah

By G. F. KNOWLTON and L. L. HALL, Utah State Agricultural College, Logan

Several species of aphids infest oak in Utah. One of the species which infest oak, received for identification from Dr. C. Lynn Hayward of the Brigham Young University, Department of Zoology and Entomology, appears to be undescribed.

Myzocallis youngii n. sp.

Alate vivipara: Body color pale to slightly dusky; body 2.5 to 2.6 mm. long; abdomen 1.17 wide; antennal tubercles moderately developed, exceeding vertex; antennae 2.12 to 2.26 mm. long, dusky, to darker on antennals I and II, distal portions of III, IV, and most of V and VI; antennal III, .64 to .76 mm. long with 6–9 conspicuous circular sensoria; IV, .38 to .46; V, .38 to .4; VI, .174 to .206 plus .19 to .258 mm., with unguis longer than base; ocular tubercles prominent; rostral IV + V dusky, darker at apex, .15 mm. long; prothorax with two pair of finger-like dorsal tubercles, the second pair are much the longest, being .07 mm. long; wing venation normal, all veins distinct, dusky-brown, with darkened areas where veins terminate at margin of wing; hind tibia dusky with darker area at apical end 1.31 to 1.49; hind tarsus dusky, .138; abdomen paler than rest of body, with seven pairs of finger-like dorsal tubercles which decrease in length toward caudal end of series; cornicles truncate, dusky, .12 mm. long, broadly flanged; cauda blackish, distinctly knobbed, .17, with 3 pairs of prominent lateral hairs and 3 dorsal hairs; anal plate dusky, distinctly bilobed, each lobe margin with 3 or 4 conspicuous hairs.

Collection: On *Quercus gambelii* on "Y" Mountain near Provo, UTAH, May 22, 1945, by C. Lynn Hayward. Type in the collection of the senior writer.

Taxonomy: Myzocallis youngii runs to *M. californicus* Baker in Baker's Key (Jour. Econ. Ent. 10: 421–424, 1917), from which it differs in having longer antennal V, longer base and unguis of antennal VI, more sensoria on antennal III, and more than 3 pairs of finger-like tubercles on dorsal surface of abdomen; also *youngii* possesses two pairs of dorsal tubercles on the prothrorax. It resembles *M. fumipennellus* (Fitch) in having two pair of prothoracic tubercles, but in *M. youngii* the front pair are larger and longer than the second, while the opposite is the case in *fumipennellus,* which is a much darker species.

Notes on the Lace Bug, Gargaphia iridescens Champion

By GEORGE P. WENE, Texas Agricultural Experiment Station, Weslaco

The lace bug, * *Gargaphia iridescens* Champion, was first found severely injuring young tomato plants on March 23, 1947, in a single field near Mission, Texas. In mid September this insect was found in small numbers on black-eye peas and canning beans in the dry land area around Harlingen. On September 26 of the same year heavy infestations occurred on all varieties of beans near Weslaco. A few days later young lima bean plants collected in the Brownsville area had from 5 to 10 lace bugs per leaf.

Injury occurred only on very young bean plants and was first noticed on bean plants in the 3 or 5 leaf stage. The first symptom is usually a yellowing of a portion of a leaf. On the underside of the leaf can be found numerous black excrement spots about the size of a pencil point. As the feeding progresses the entire leaf turns yellow, slowly wilts, and finally drops off, resulting in a stunted and sometimes a dead plant. Even a single lace bug could severely stunt a young bean plant that had only the two cotyledon leaves.

The nymphal stage is passed on the young bean plant. As many as 30 nymphs have been found on a single leaf. As a rule most of the nymphs will be found on a single leaf of a plant. Migration to the other parts of the plant usually takes place after the adult stage is reached. Both nymphs and adults prefer to feed on the younger and more tender leaves of the bean plant, and practically always on the lower surfaces.

Heavy infestations of this insect have also been found on young volunteer cotton plants during September and there is information available that indicates destructive infestations on local experimental plantings of guayule during 1944 and 1945.

* Thanks are due to Dr. R. I. Sailer of the U.S.D.A., Division of Insect Identification, for the identification of this insect.

So far, the author has been unable to find any uniform infestations of lace bugs. Heavy and damaging infestations were found in areas up to one-tenth of an acre in size distributed at random throughout the field. These areas were so numerous in many fields that growers were forced to dust with 5.0 per cent DDT in order to save their bean crops. No lace bug infestations were seen during the 1948 season. It will be interesting to see if this insect will become a serious pest of vegetables at some future date.

Diplops desertorum a Scorpion Synonym

By HERBERT L. STAHNKE, Poisonous Animals Research Laboratory, Arizona State College, Tempe, Arizona

The scorpion, *Diplops desertorum,* designated as a new species by Stanley Mulaik and Harold G. Higgins in ENTOMOLOGICAL NEWS, Vol. IV, No. 9, November, 1944, must be considered as a synonym of *Superstitionia donensis,* designated and described by the author in the IOWA STATE COLLEGE JOURNAL OF SCIENCE, Vol. XV, No. 1, October 1940, pp. 101–103.

In the same publication this species was placed in the family Chactidae and a new subfamily created, Superstitioninae.

A full description of both the new species and new subfamily was given in an Iowa State College doctor's dissertation entitled, "The Scorpions of Arizona," 1939.

The authors, Mulaik and Higgins, were unaware of the existence of the Iowa State Journal article and should be complimented on their very excellent description. It is so clear that there can be no question as to the species designation being a synonym.

Current Entomological Literature

COMPILED BY RAYMOND Q. BLISS AND R. G. SCHMIEDER.

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia and the University of Pennsylvania, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

This list gives references of the year 1949 unless otherwise noted. Continued papers, with few exceptions, are recorded only at their first installment.

For other records of general literature and for economic literature, see the Bibliography of Agriculture, Washington, and the Review of Applied Entomology, Series A, London. For records of papers on medical entomology see Review of Applied Entomology, Series B.

NOTE: The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the List of periodicals and serials published in our January and June issues. The number of the volume, and in some cases, the part, heft, &c. is followed by a colon (:). References to papers containing new forms or names not so stated in titles are followed by (*); if containing keys are followed by (k); papers pertaining exclusively to Neotropical species, and not so indicated in the title, have the symbol (S).

Papers published in ENTOMOLOGICAL NEWS are not listed.

GENERAL—Anon.—Necrologia: Dr. Andrés Copello. [Rev. Soc. Ent. Argent.] 14: 233–34. Martin Doello Jurado. *Ibid.* 234–38. Candido F. de Mello-Leitão, 1886–1948. *Ibid.* 238–40. Emilio V. Gemignani. *Ibid.* 240–43. **Balch, R. E.**—Symposium on Entomological education. [79 Ann. Rep. Ent. Soc. Ontario, 1948] 58–65. **Bollow, H.**—Die Verbreitung der San-Jose-Schildlaus Quadraspidiotus perniciosus. (Coccid). [Entomon.] 1: 10–19. **Bw.**—Essigsäure als Aufweichflüssigkeit. [Entomon.] 1: 45–46. **Caldwell, A. H.**—Mass rearing of Drosophila. [37] 42: 707. **Ceballos, G.**—Las sociedad de los insectos y las humanas. [Graellsia] 5: 63–68, 1947. **C., N. P.**—Edward Ernest Green, 1861–1949. (Obituary.) [28] 85: 215–16. **Fournier, O.**—Entomology in France. [79 Ann. Rep. Ent. Soc. Ontario, 1948] 6–8. **House, H. L. and M. G. Traer**—An artificial food for rearing Pseudosarcophaga affinis, a parasite of the spruce budworm, Choristoneura fumiferana. [79 Ann. Rep. Ent. Soc. Ontario, 1948] 50–53. **Laurent, R.**—Problems taxonomiques l'espèce et la race. La phylogenèse et la systématique. [Ann. Soc. Roy. Zool. Belg.] 78: 56–101, 1947. **L., J.**—Dr. Alfonso Dampf, 1884–1948. [Rev. Soc. Ent. Argent.] 14: 231–33. **MacNay, C. G.**—Summary of the more important insect infestations and occurrences in Canada in 1948. [79 Ann. Rep. Ent. Soc. Ontario, 1948] 66–87. **Orfila, R. N.**—Dr. Eugenio Giacomello. Nota bio-bibliografia. [Rev. Soc. Ent. Argent.] 14: 223–27. **Richards, O. W.**—The evolution of the cuckoo bees and wasps. [Proc. Linn. Soc. London]

161: 40–41. The significance of the number of wing-hooks in bees and wasps. [68] 24: 75–78. **Richter, R.**—Einführung in die zoologische Nomenklatur durch Erläuterung der internationalen Regeln. 2nd rev. ed., with official list of zoological generic names. Senckenberg-Buch No. 15. Frankfurt a. Main, 1948. Dr. W. Kramer. 252 pages. Price DM 8.50. Gattungen, die auf unrichtig determinierte Individuen begründet worden sind. [Entomon.] 1: 19–20. Die neue Regelung für die Homonymie der Gattungsnamen. [Entomon.] 1: 68–69. **Sachtleben, H.**—Über Bibliographie und "Index Litteraturae Entomologicae." [Entomon.] 1: 2–4. Walther Horn (1871–1939). [Entomon.] 1: 97–100. **Schilder, F. A.**—Variabilitäts-Studien. [Entomon.] 1: 40–43, ill. Statistik der Anzahl der Insekten und der entomologischen Publikationen. [Entomon.] 1: 73–76. Quantitative Zoogeographie bei Insekten. *Ibid.* 111–13. **Stammer, H. J.**—Die Ökologie und der Entomologe. [Entomon.] 1: 25–30. **Stock, H.**—Der Skarabäus der alten Ägypter. [Entomon.] 1: 49–55, ill. **Stüben, M.**—Eine neues Einschlussmittel für Chitin. [Entomon.] 1: 70–71. **Williams, C. B.**—A light trap for insects. [Lep. News] 3: 63–64, ill.

ANATOMY, PHYSIOLOGY, MEDICAL—Arnason, T. J., R. L. Irwin and J. W. T. Spinks—Some effects of P^{32} on the development of Drosophila. [24] sect. D, *27*: 186–94. **Bertani, G.**—Contributo allo studio de pH intranucleare nelle cellule delli ghiandole salivari di Chironomus thummi. [Rendiconti, Cl. Sci. Mat. e Nat., Milano] *77*: 427–36, 1943–44. **Bertrand, H.**—L'adaptation chez les larves et nymphes des coléoptères aquatiques. [L'Année Biol.] 25: 161–86. **Buzzati-Traverso, A.**—Morfologia, citologia biologia di due nuove specie di Drosophila (nitens, tigrina). [Rendiconti, Cl. Sci. Mat. e Nat., Milano] *77*: 37–49, 1943–44. La meccanica cromosomica determinante la variegazione in "white-mottling" in Drosophila melanogaster. *Ibid.* 61–64. **Clay, T.**—Piercing mouth parts in the biting lice (Mallophaga). [53] 164: 617, ill. **da Cunha, A. B.**—Genetic analysis of the polymorphism of color pattern in Drosophila polymorphia. [100] 3: 239–51. **Day, M. F.**—The distribution of alkaline phosphatase in insects. [Austral. Jour. Sci. Res.] Ser. B, 2: 31–41, ill. **Day, M. F. and R. F. Powning**—A study of the processes of digestion in certain insects. [Australian Jour. Sci. Res.] 2: 175–215, ill. **Feldman-Muhsan, B.**—Hibernation of Hyalomma sauignyi (Ixodidae) in Palestine. [19] 40: 305–06. **Frankenburg, G.**—Ortsbewegung mittels "künstlicher Muskeln." (Hym., Pamphilius). [Natur und

Volk] 79: 26–34. **Gardner, E. J. and C. M. Woolf**—Maternal effect involved in the inheritance of abnormal growths in the head region of Drosophila melanogaster. [Genetics] 34: 573–85. **Gleichauf, R.**—Zwitterbildung beim Seidenspinner (Lep. Bombycidae). [Entomon.] 1: 56–66, ill. **Green, M. M.**—A study of tryptophane in eye color mutants of Drosophila. [Genetics] 34: 564–72. **Hasama, B.**—Über die Biolumineszenz bei Pyrocoelia rufa im Aktionsstrombild sowie im histologischen Bild. [Annot. Zool. Jap.] 21: 59–78, 1942. Lebensgeschichte der Luciola eruciata und der L. lateralis. *Ibid.* 22: 23–47, 1943. **Haydak, M. H.**—Causes of deficiency of soybean flour as a pollen substitute for honeybees. [37] 42: 573. **Honjo, I.**—Zur Kenntnis der Lichtkompassbewegung der Ohrwürmer (Dermaptera). [Mem. Coll. Sci. Kyoto Imp. Univ.] Ser. B, 16: 37–58, 1941. **Jacobs, W.**—Über Lautäusserungen bei Insekten, insbesondere bei Heuschrecken. [Entomon.] 1: 100–07. **Judd, W. M.**—The proventricular region of Tetraopes tetropthalmus (Col. Ceramb.). [24] Sect. D, 27: 195–99, ill. **Kennedy, J. S.**—A preliminary analysis of oviposition behavior by Locusta (Acridid.) in relation to moisture. [68] 24: 83–89. **Kishi, S., M. Miwa und K. Mori**—Über den Einfluss der β-strahlen auf die Flügelcher der Schmetterlingspuppen. [Annot. Zool. Jap.] 22: 75–89, 1943. **Kuwana, Z.**—On the pupal diapause of Sturmia sericariae (Tachin.). [Annot. Zool. Jap.] 21: 95–101, 1942. **Landa, V.**—Moulting of the tracheal system of ephemerid larvae and nymphs. (English summary.) [Časopis České Spol. Ent.] 46: 6–15, 1949. **Lewis, E.**—A propos de la coloration des cassides (Col.). [110] 5: 99–100. **Lotmar, R.**—Beobachtungen über Nahrungsaufnahme und Vedauung bei Stomoxys calcitrans. [Mitt. Schweiz. Ent. Ges.] 22: 97–115, 1949. **MacLeod, J.**—The climatology of blowfly myiasis. II. Oviposition and daily weather indices. [19] 40: 179–201. **Marcus, H.**—Eine neue Theorie über die Atmung der Insekten. [Anz. f. Schädlingskde.] 21: 76–78, 1948. **Marlier, G.**—La perméabilité à l'eau de la peau d'un insecta aquatique. [Ann. Soc. Roy. Zool. Belg.] 79: 63–72, 1948. **Misra, R. N.**—Notes on the anatomy of the stridulatory organs of Gryllus sigillatus. [Proc. Nat. Acad. Sci. India] Sect. B, 15: 15–19. **Mittelstaedt, H.**—Telotaxis und Optomotorik von Eristalis bei Augen inversion. [Die Naturwiss.] 36: 90–91. **Moggridge, J. Y.**—Climate and the activity of the activity of the Kenya coastal Glossina. [19] 40: 307–21. **Newby, W. W.**

—Abnormal growths on the head of Drosophila melanogaster. [44] 85: 177–95. **Paclt, J.**—Sur le jaune du genre Colias F. (French summary.) [Časopis České Spol. Ent.] 41: 122–24, 1944. **Ribbands, C. R.**—Studies on the attractiveness of human populations to Anophelines. [19] 40: 227–38. **Salt, R. W.**—A key to the embryological development of Melanoplus bivattus (Say), M. mexicanus mexicanus (Sauss.) and M. Parkardii Scudder. [24] Sect. D, 27: 233–35. **Schneider, F.**—Beitrag zur Kenntnis der Generationsverhältnisse und Diapause räuberischer Schwebfliegen (Syrphidae). [Mitth. Schweiz. Ent. Ges.] 21: 249–85. **Shanes, A. M.**—Electrical phenomena in nerve. II. Crab nerve. [Jour. Gen. Physio.] 33: 75–102. **Shima, T.**—Die optomotorischen Reaktionen des Tumelkäfers. [Annot. Zool. Jap.] 21: 125–35, 1942. **Srivastava, M. D. L.**—The cytoplasmic inclusions in the oogenesis of Danais chrysippus. [Proc. Nat. Acad. Sci. India] Sect. B, 13: 86–105, 1943. **Stampfel, J.**—De experimentis ad physiologum alimentarium Tenebrionis pertinentibus. (Latin summary.) [Časopis České Spol. Ent.] 41: 4–12, 1944. **Šulc, K.**—Über echte Stimme, erzeugt von der Parnassius Raupen. (German summary.) [Časopis České Spol. Ent.] 39: 34–35, 1942. **Way, M. J., B. Hopkins and P. M. Smith**—Photoperiodism and diapause in insects. [53] 164: 615. **Wenig, K.**—Histochemische Untersuchungen über den Gehalt der Sulphhydryl-verbindungen in dem Organismus der Insekten. (German summary.) [Časopis České Spol. Ent.] 36: 71–72, 1939. **White, M. J. D.**—Cytological evidence of the phylogeny and classification of the Diptera. [100] 3: 252–61. A cytological survey of wild populations of Trimerotropis and Circotettix (Acrid.). I. The chromosomes of twelve species. [Genetics] 34: 537–63. **Williams, J. L.**—Anatomie comparée des genitalia internes de quatre espèces representant quatre genres et deux sous-familles de Noctuidae (Lep.). [Rev. Fran. Lepidopterologie] 11: 238–50, ill. **Zander, E.**—Studien zur Herkunftsbestimmung bei Waldhonigen. (Concerns honeydew from aphids and coccids.) 12 tables, 184 text figs. Franz Ehrenwirth Verlag, Munich, 1949.

ARACHNIDA AND MYRIOPODA—Bishop, S. C.—The Phalangida (Opiliones) of New York. [Proc. Rochester Acad. Sci.] 9: 159–235. **Feldman-Muhsan, B.**—(See under Anatomy.) **Gaul, A. T.**—Habits and control of the black widow spider. [37] 42: 700–01. **Staviarski, V.**—

Aranhas Caranguejeiras. [Rev. Mus. Nac., Rio de Janeiro] 1: 12–15, ill., 1945. **Thomas, M.**—L'instinct chez les Araignées. [Ann. Bull. Soc. Ent. Belg.] 85: 91–97.

SMALLER ORDERS—Barlet, J.—Chétotaxie thoracique chez le pseudofoetus d'un machilide. [Bull. Ann. Soc. Ent. Belg.] 85: 60–64, ill. **Clay, T.**—Mallophaga. (See under Anatomy.) **Eichler, W.**—Über den Taubenfederling Lipeurus baculus oder Columbicola columbae und die zoologische Nomenklatur (Mallophaga). [Entomon.] 1: 107–111. **Gisin, H.**—Études écologiques sur les Collemboles épigés. [Mitt. Schweiz. Ent. Ges.] 21: 485–515, 1948. **Günther, V.**—Strepsiptera from Trinidad, B. W. I.] Časopis České Spol. Ent.] 46: 47–50 (*), 1949. **Hanson, J. F.**—Studies on the Plecoptera of North America: V. Notes on Isogenoides. [18] 44: 109–15 (*). **Honjo, I.**—Dermaptera. (See under Anatomy.) **Hopkins, G. H. E.**—Some factors which have modified the phylogenetic relationship between parasite and host in the Mallophaga. [Proc. Linn. Soc. London] 161: 37–39. **Landa, V.**—Ephemerida. (See under Anatomy.) **Leonard, J. W. and F. A. Leonard**—An annotated list of Michigan Trichoptera. [Occas. Papers Mus. Zool. Mich.] No. 522: 1–33. Noteworthy records of caddice flies from Michigan with descriptions of new species. *Ibid.* No. 520: 1–8, ill.

ORTHOPTERA—Day, M. F. and R. F. Powning—(See under Anatomy.) **Jacobs, W.**—(See under Anatomy.) **James, H. G.**—The distribution in Ontario of the European mantis, Mantis religiosa. [79 Ann. Rep. Ent. Soc. Ontario, 1948] 41–44. **Kennedy, J. S.**—(See under Anatomy.) **Misra, R. N.**—(See under Anatomy.) **Ramme, W.**—Beitrag zur Kenntnis der Acrididen Fauna der Indomalayischen und benachtbarter Gebiete. [Mitt. Zool. Mus. Berlin] 25: 1–242, 21 pls. **Salt, R. W.**—(See under Anatomy.) **White, M. J. D.**—(See under Anatomy.)

HEMIPTERA—Bollow, H.—San Jose scale. (See under General.) **DeLong, D. M. and R. V. Hershberger**—The genus Penestirellus in North America including Mexico (Cicadell.). [18] 44: 116–20 (*). **Jacob, F. H.**—A study of Aphis sambuci and a discussion of its bearing upon the study of the "black aphids." Pt. I. [68] 24: 90–98. **Lindinger, L.**—Einige Mitteilungen über Schildläuse (Coccoidea). [Entomon.] 210–13. **Oman, P. W.**—The nearctic leafhoppers: a generic classification and check list. Memoir No. 3, Ent. Soc. Wash. pp. 260. $7.00. **Prabhaker,**

Rao, V.—The genus Unaspis Macgillivary (Diaspid.). [50] 14: 59–72. **Wagner, E.**—Umfärbungen von Imagines und Saisondimorphismus bei Arten der Gattung Stenodema Lap. und Verwandten (Mirid.). [Entomon.] 1: 30–40. **Woodward, T. E.**—Notes on the biology of some Hemiptera-Heteroptera. [28] 85: 193–206. **Zander, E.**—(See under Anatomy.)

LEPIDOPTERA—Bourquin, F.—Metamorfosis de Molippa sabina (Hemileucidae). [Rev. Soc. Ent. Argent.] 14: 204–10, ill. **Frost, S. W.**—The diamond back moth in Pennsylvania. [37] 42: 681–82. **Gleichauf, R.**—(See under Anatomy.) **Kishi, S., M. Miwa und K. Mori**—(See under Anatomy.) **Paclt, J.**—Zur systematischen Klassification der Hepialiden und Nomenklatorisches über diesselbe Familie. [Časopis České Spol. Ent.] 41: 141–44, 1944. (See also under Anatomy.) **Ribbe, C.**—La fauna lepidopterológica andaluza. [Graellsia] 6: 1–82. **Šulc, K.**—(See under Anatomy.) **Torre y Callejas, S. L. de la**—A list supplementing Bute's "Butterflies of Cuba." [Lep. News] 3: 65. **Warnecke, G.**—Wanderschmetterlinge in Europa. [Entomon.] 1: 77–84. **Williams, C. B.**—(See under General.) **Williams, J. L.**—(See under Anatomy.)

DIPTERA—Caldwell, A. H.—(See under General.) **da Cunha, A. B.**—(See under Anatomy.) **Benjamin, D. M. and A. C. Hodson**—A new bait trap collection record for Rhagoletis completa. [37] 42: 707–08. **Bertani, G.**—(See under Anatomy.) **Buzzati-Traversò, A.**—(See under Anatomy). **Gardner, E. J. and C. M. Woolf**—(See under Anatomy.) **Green, M. M.**—(See under Anatomy.) **Hering, E. M.**—Biologische Unterarten bei Phytomyza ranunculi (Agromyz.). [Entomon.] 1: 207–10. **House, H. L. and Traer, M. G.**—(See under General.) **Kuwana, Z.**—(See under Anatomy.) **Laake, E. W., H. M. Brundrett and O. G. Babcock**—Screw-worm survey in western United States, 1948. [37] 684–85. **Lengersdorf, F.**—Rückbildungen bei Trauermücken-Imagines (Sciaridae). [Entomon.] 1: 115–17. **Lindner, E.**—Die Larve der Narzissenfliege Lampetia equestris Fabr. (Syrphid). [Entomon.] 1: 4–9, ill. **Lotmar, R.**—(See under Anatomy.) **MacLeod, J.**—(See under Anatomy.) **Moggridge, J. Y.**—(See under Anatomy.) **Newby, W. W.**—(See under Anatomy.) **Ribbands, C. R.**—(See under Anatomy.) **Rogers, J. S.**—The life history of Megistocera longipennis (Tipulid.), a member of the Neuston fauna. [Occas. Papers Mus. Zool. Mich.] No. 521: 1–14,

ill. **Schneider, F.**—(See under Anatomy.) **Steyskal, G. C.**—A new anomalous acalyptrate fly. [18] 44: 134–37. **Stone, A.**—The identity of two nearctic Simuliidae. [18] 44: 138–40. **Vimmer, A.**—Pseudomyiospila, nový rod Calyptrat. [Časopis České Spol. Ent.] 36: 61 (S), 1939. Übersicht der Gattungen der Südamerikanischen Hystriciiden (Tachinid.). *Ibid.* 37: 101–03 ,1940. **White, M. J. D.**—(See under Anatomy.)

COLEOPTERA—Anderson, W. H.—Larval description and transfer of Thaumaphrastus karanisensis from Colydiidae to a new subfamily of Dermestidae. [18] 44: 121–27. **Balthasar, V.**—Megathopsoma n. gen. und neue Arten der Gattung Deltochilum (Scarab.). [Časopis České Spol. Ent.] 36: 5–19, 1939. Einige neue Scarabaeidae Arten. *Ibid.* 37: 67–76 (S), 1940. Neue Scarabaeidae aus Süd-Amerika. *Ibid.* 39: 36–44, 1942. Quatuor generis Aphodius subgenera nova. *Ibid.* 42: 40–44 (S), 1945. De uno genere et nonnullis Aphodiinarum speciebus novis. *Ibid.* 104–15 (S). Deux nouvelles especès des Scarabaeids Laparosticti. *Ibid.* 43: 23–26 (S), 1946. **Bechyně, J.**—De Chrysomelidarum Americae Meridionalis formis novis. [Časopis České Spol. Ent.] 42: 94, 1945. Annotationes ad cognitionem specierum Americae Centralis generis Chalcophana (Eumolpidae). *Ibid.* 44: 81–85, 1947. **Bertrand, H.**—(See under Anatomy.) **Bosq, J. M.**—Anotaciones relativos a una lista de fauna local sobre Cerambicidos Argentinos. [Rev. Soc. Ent. Arg.] 14: 194–203. **Bradford, B.**—The external features of the larva of Anomala vetula (Col., Scarab.). [68] 24: 67–74. **Day, M. F. and R. F. Powning**—(See under Anatomy.) **Hasama, B.**—(See under Anatomy.) **Janjua, N. A. and R. N. Mehra**—The biology of Quettania coeruleipennis (Cerambyc.) in Baluchistan. [19] 40: 203–06. **Judd, W. M.**—(See under Anatomy.) **Kult, K.**—The third study to the knowledge of the Tribus Clivinini (Carab.). [Časopis České Spol. Ent.] 44: 26–37 (*), 1947. **Lewis, E.**—(See under Anatomy.) **Martinez, A.**—Insectos nuevos o poco conocidos VII. (Scarab.). [Rev. Soc. Ent. Argent.] 14: 175–93. **Obenberger, J.**—Dua novi krasci z Peru Pseudolampetis. [Časopis České Spol. Ent.] 36: 26, 1939. Colobogaster diviana var. Eucyanea n. var. *Ibid.* 76 (S). Generis Mastogenius Sol. Americae Borealis specierum reviso (Bupres.). *Ibid.* 78–80. De novis Buprestidarum speciebus exoticus. *Ibid.* 88–93 (S). De generis Pseudoacherusia Ken. specie

nova (Bupr.). *Ibid.* 37: 93 (S), 1940. Revise rodu Sambomorpha Obenb. (Bupr.). *Ibid.* 110–12 (S*). De specie et subgenere novo Buprestidarum Brasiliae. *Ibid.* 38: 75–76, 1941. De genere Chalcophorella et generibus vicinis (Bupr.). *Ibid.* 39: 2–12 (k), 1942. Agriloides strandi ssp. meranus n. (Bupr.). *Ibid.* 120 (S). De tribus generis Anthaxiae Americae borealis speciebus novis. *Ibid.* 127–29. De duabis regionis neotropicae Agrilinis novis. *Ibid.* 40: 127–28 (S), 1943. Psiloptera (sbg. Lampetis) beatricis n. sp. *Ibid.* 133 (S). **Pic, M.**—Notes sur le genre Plectonycha Lac. (Phytoph.). [Rev. Soc. Ent. Argent.] 14: 211–14. **Schilder, F. A.**—Coccinellidae. (See under Anatomy.) **Shima, T.**—(See under Anatomy.) **Stampfel, J.**—(See under Anatomy.) **Stock, H.**—(See under General.) **Tippmann, F. F.**—Eine neue Cyclopeplus-Art aus Peru (Ceramb.). [Časopis České Spol. Ent.] 36: 77, 1939. **Wittmer, W.**—Beitrag zur Kenntnis der neotropischen Malacodermata. [Rev. Soc. Ent. Argent.] 14: 215–22 (*).

HYMENOPTERA—Frankenburg, G.—(See under Anatomy.) **Ghesquière, J.**—Contribution à l'étude du genre Aneristus (Chalcid., Apheninid.). [Bull. et Ann. Soc. Ent. Belg.] 85: 156–67. **Haydak, M. H.**—(See under Anatomy.) **Leclercq, J.**—Catologue du Cryptinae (Ichn.) de la Belgique. [Ann. Bull. Soc. Ent. Belg.] 85: 80–90. **Richards, O. W.**—(See under General.) **Townes, H.**—The nearctic species of Evaniidae. [71] 99 (3253): 525–39. **Zander, E.**—(See under Anatomy.)

Entomon

Through an oversight, the name of the publisher of the new journal "Entomon" was omitted from the description of it in our October issue (p. 223). The publisher is: Verlag Sebastian Lux, Murnau vor München, Germany. The addresses of the editors are as follows: Hermann Bollow, Englschalkingerstrasse 67, München 27 (for morphology, systematics, faunistics) and Dr. Herbert Brandt, Königenstrasse 36, Bayerische Landesanstalt für Pflanzenbau und Pflanzenschutz, München 23 (for physiology, ecology and applied entomology).

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being longest in) are discontinued.

Tingidae (Heteroptera) of the world wanted, in alcohol, with host and other ecological data. Will collect other orders in exchange. N. S. Bailey, 16 Neponset Ave., Hyde Park 36, Mass.

Bombidae, nearctic and neotropical, wanted for exchange, identification, or purchase. Will exchange in other groups for bumblebees. Barth Maina, Dept. Zool., Univ. of Chicago, Chicago 37, Ill.

Saturnidae of the world. Will purchase individual specimens or cocoons. F. E. Rutkowski, St. Bede College, Peru, Illinois, U. S. A.

Butterflies of New England, principally from New Haven, Conn., for exchange. Louis Clarke, 28 W. Elm St., New Haven 15, Conn.

Wanted—Proc. Ent. Soc. Phila., vols. 1–6; Proc. Cal. Acad. (Nat.) Sci., 1–7; Proc. Acad. Nat. Sci. Phila., 1–8; Trans. Amer. Ent. Soc., 1–5; Bull. Buff. Soc. Nat. Sci., 2–3; Psyche, 11, 13, 15. C. F. dos Passos, Mendham, N. J.

Miridae (Capsidae)—American species wanted, with locality labels, in exchange for British species. D. Leston, F.R.E.S., 6 Frognal Rise, London N. W. 3, England.

Wanted—Entomological microscope in good condition; Spencer, Bausch & Lomb, or other standard make. David G. Shappirio, 4811 17th St., N.W., Washington 11, D. C.

Coleoptera—Large quantities of Cicindelidae, Buprestidae, Lucanidae, Cerambycidae wanted in exchange for all families of Coleoptera from Ill., Ind. and Mo. Joseph B. Hayes, 1905 N. Pulaski Rd., Chicago 39, Ill.

W. S. Blatchley Books for Sale

Rhyncophora of N. E. America, 1916, 682 pp., Paper $4.00
Orthoptera of N. E. America, 1920, 784 pp., Paper 5.00
Heteroptera of E. N. America, 1926, 1116 pp., Cloth 10.00
Coleoptera of Indiana, when available 50.00

Address Librarian, Blatchley Nature Study Club, Noblesville, Indiana.

INSECT PINS First quality steel, flexible and rustproof, sizes #00–8, $1.10 per 1000 F.O.B. Salzburg, Austria. Distributors discount. For details and samples contact:

"INSECTPINS", Solaristrasse 14, Salzburg, Austria

WARD-COLOR SLIDES

of Exotic and North American

BUTTERFLIES AND MOTHS

An exclusive selection of *Ward-Color Slides* of exotic and North American butterflies and moths is available for the individual, school or college. Beautiful true-to-life color slides that display the unusual and common varieties for study. Write today for free Color-Slide Catalog.

WARD'S **Natural Science Establishment, Inc.**
Serving the Natural Sciences Since 1862
3000 Ridge Road East · Rochester 9, New York

Important Mosquito Works

MOSQUITO ATLAS. Part I. The Nearctic Anopheles, important malarial vectors of the Americas, and Aedes aegypti and Culex quinquefasciata

MOSQUITO ATLAS. Part II. The more important malaria vectors of the Old World: Europe, Asia, Africa and South Pacific region

By Edward S. Ross and H. Radclyffe Roberts
Price, 60 cents each (U. S. Currency) with order, postpaid within the United States; 65 cents, foreign.

KEYS TO THE ANOPHELINE MOSQUITOES OF THE WORLD

With notes on their Identification, Distribution, Biology and Relation to Malaria. By Paul F. Russell, Lloyd E. Rozeboom and Alan Stone

Mailed on receipt of price, $2.00 U. S. Currency. Foreign Delivery $2.10.

For sale by the American Entomological Society, 1900 Race Street, Philadelphia 3, Pa., U. S. A.

RECENT LITERATURE

FOR SALE BY

THE AMERICAN ENTOMOLOGICAL SOCIETY

1900 RACE STREET, PHILADELPHIA, PA.

DIPTERA

1138.—Cresson (E. T., Jr.)—A systematic annotated arrangement of the gen. and spp. of the neotropical Ephydridae. II. The subfam. Notiphilinae (73: 35–61, 1947) ..... $ .90

1142.—A systematic annotated arrangement of the gen. and spp. of the Ethiopian Ephydridae. II. The subfam. Notiphilinae (73: 105–124, 1947) ..... .50

HYMENOPTERA

1137.—Pate (V. S. L.)—The Pemphilidine wasps of the Caribbees (73: 1–33, 1 pl., 1947) ..... .85

COLEOPTERA

1145.—Dillon (L. S. & E. S.)—The tribe Dorcaschematini (Coleoptera: Cerambycidae) (73: 173–298, 6 pls., 1947) 3.45

1139.—Green (J. W.)—New Eastern Amer. sp. of Podabrus (73: 63–76, figs., 1947) ..... .35

1144.—Robinson (M.)—Two new spp. of Scarabaeidae (73: 169–171, 1947) ..... .20

1146.—A review of the genus Phanaeus inhabiting the United States (73: 299–305, 1947) ..... .20

LEPIDOPTERA

1141.—Darlington (E. P.)—Notes on certain types of Lepidoptera described by Brackenridge Clemens (73: 85–104, 1947) ... .50

1140.—Williams (J. L.)—The anatomy of the internal genitalia of Fumea Casta Pallas (73: 77–84, figs., 1947) ..... .20

TRICHOPTERA

1143.—Ross (H. H.)—Descriptions and records of No. Amer. Trichoptera, with synoptic notes (73: 125–168, 7 pls., 1947) .. 1.40

ODONATA

1147.—Needham (J. G.)—Studies on the No. Amer. spp. of the genus Gomphus (Odonata) (73: 307–339, fig., 1 pl., 1947) ..... .85